STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

In the Matter of the	**)**	
	)	
Proposed Revision to the Collocation	**)**	
Tariffs to Eliminate Charges for DC	**)**	**ICC Docket No. 05-0675**
Power on a Per Kilowatt-hour Basis	**)**	
and to Implement Charging on a Per	**)**	
Amp Basis	**)**	

SURREBUTTAL TESTIMONY OF

STEVEN E. TURNER

ON BEHALF OF

COVAD COMMUNICATIONS COMPANY,

MCLEODUSA TELECOMMUNICATIONS SERVICES, INC.,

MPOWER COMMUNICATIONS CORP., AND

XO COMMUNICATIONS SERVICES, INC.

JOINT CLEC EXHIBIT 2.1

This document contains redacted information that is confidential and proprietary,

and subject to the Protective Order in this proceeding.

***** PUBLIC VERSION *****

MARCH 29, 2006

TABLE OF CONTENTS

CONTENTS PAGE

I. INTRODUCTION OF WITNESS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Steven E. Turner. My business address is Kaleo Consulting, 2031 Gold Leaf Parkway, Canton, Georgia 30114.

Q. ARE YOU THE SAME STEVEN E. TURNER THAT FILED DIRECT AND REBUTTAL TESTIMONY IN THIS SAME PROCEEDING ON FEBRUARY 2, 2006 AND FEBRUARY 22, 2006, RESPECTIVELY?

A. Yes.

II. OVERVIEW AND SUMMARY OF TESTIMONY

Q. FOR WHOM ARE YOU PROVIDING TESTIMONY IN THIS PROCEEDING?

A. I am testifying on behalf of Covad Communications Company ("Covad"), McLeodUSA Telecommunications Services ("McLeodUSA"), MPower Communications Corp. ("MPower"), and XO Communications Services, Inc. ("XO") (collectively "Joint CLECs").

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. Mr. Roman A. Smith[1] and Marvin Nevels[2] filed Rebuttal Testimony on behalf of AT&T Illinois on March 7, 2006. It is my understanding that parties have been provided an opportunity to offer limited surrebuttal testimony in response to the revised proposals from Mr. Smith and Mr. Nevels. My testimony comments on and responds to the Nevels Rebuttal and Smith Rebuttal and Schedule RAS-4 with respect to AT&T Illinois' revised proposed collocation tariff. In their respective rebuttal testimonies, Messrs. Smith and

[1] Rebuttal Testimony of Roman A. Smith on behalf of AT&T Illinois, AT&T Illinois Exhibit 5.1, March 7, 2006 ("Smith Rebuttal").

Nevels offered revisions to AT&T-Illinois' tariff proposal and the proper method of fusing the CLECs' power arrangements. Many of the proposed revisions found in AT&T-Illinois' Rebuttal Testimony respond to the concerns that I had raised in my Direct Testimony. Mr. Smith provided, in Schedule RAS-4 attached to his Rebuttal Testimony, new AT&T-Illinois proposals or clarifications for billing CLECs for power consumption for collocation and regarding the self-certification and audit provisions for power usage. Mr. Nevels' revised recommendation for fusing of the collocation arrangements is not found in the proposed tariff since the tariff does not address this issue. Instead, Mr. Nevels' revised recommendation is found in his Rebuttal Testimony and I will respond to it as well since it was raised for the first time in rebuttal.

In short, I find that there are still significant shortcomings that plague the revised tariff and likewise cause Mr. Nevels' revised proposal for fusing to be unworkable and impractical. To assist the Commission in resolving the disputes related to the tariff proposals, I have attached as Schedule SET-3 my own revision to Mr. Smith's Schedule RAS-4 that attempts to rectify the problems. My primary recommendation in my Direct Testimony was that the metering solution designed by AT&T, which CLECs have paid millions to implement in Illinois, should be corrected, rather than abandoned. I stand by that recommendation and continue to urge the Commission to adopt my recommendation. Assuming that the Commission does not adopt this primary recommendation, however, I

[2] Rebuttal Testimony of Marvin Nevels on behalf of AT&T Illinois, AT&T Illinois Exhibit 3.1, March 7, 2006, ("Nevels Rebuttal").

propose changes to Mr. Smith's proposal that would operate within the general framework proposed by Mr. Smith.

III. DUE TO THE MINIMUM AMPERAGE COMPONENT OF AT&T-ILLINOIS' PROPOSAL, ITS PROPOSAL WOULD STILL FAIL TO BILL COLLOCATORS FOR USED AMPS

Q. MR. SMITH SUGGESTS THAT AT&T-ILLINOIS HAS MODIFIED THE PROPOSED TARIFF TO MAKE IT CLEAR THAT CLECS WILL SPECIFY LOAD AMPS THAT THE CLEC IS USING RATHER THAN FUSED AMPS. DO YOU AGREE THAT AT&T-ILLINOIS' MODIFICATIONS CLARIFY THE USE OF THE PER AMP RATE?

A. Yes, in part, I do believe that AT&T-Illinois' modifications to Section 16 clarify at least whether AT&T-Illinois is applying the rate on a per fused amp or per load amp basis. However, as I describe below, the revised proposal in this instance does not capture or address the full extent of my disagreement with the proposal. Mr. Smith acknowledges that "some of the verbiage used to describe this proposal has created confusion among the CLECs."[3]

In his Direct Testimony Mr. Hanson concluded that "any alternative measurement to charge for DC power be usage based."[4] He further explained that the reason for this is that it "would mitigate the possibility of IBT collecting increased revenues by the process of changing or abandoning metering arrangements."[5] The confusion, as I discussed in detail in my Direct Testimony, was regarding whether AT&T-Illinois intended to charge its proposed rate per load amp or fuse amp, as specified by the collocator. My assessment of the revisions provided by Mr. Smith is that the revised tariff does make it

[3] Smith Rebuttal at 7.

[4] *Id*. at 4.

clear that collocators will specify load amps and be billed for load amps – with one major caveat that I will discuss below.

Q. DO YOU THEN AGREE THAT AT&T-ILLINOIS WILL NOW BILL A COLLOCATOR FOR "ITS ACTUAL CONSUMPTION OVER ITS POWER DELIVERY ARRANGEMENT?"[6]

A. Unfortunately no, and this is the major caveat that I referenced above that continues to render AT&T-Illinois' proposed language, even as revised in Schedule RAS-4, to be disconnected from the actual usage incurred by CLECs.

Please recall that AT&T-Illinois' witnesses made very clear that this whole proceeding and the proposed tariff language were intended to avoid a situation where its billing for DC power usage would provide a windfall to AT&T-Illinois. Specifically, Ms. Brissenden stated:

> To the extent that a CLEC has ordered power accurately commensurate with the power requirements of its collocated equipment, the cost effect of the rate conversion will be negligible. The proposal does nothing to alter the level of the approved per KWH cost; it merely converts an existing approved cost (per KWH) to a different unit of measure (per amp). There is no increased SBC Illinois cost being attributed to CLECs' power usage with this simple conversion proposal. Therefore, the conversion proposal will result in a *neutral net effect, from a cost perspective, to both the CLECs and SBC Illinois*.[7]

Unfortunately, the new proposal that AT&T-Illinois makes in its rebuttal testimony assures that it will collect revenue for DC Power Consumption that it does not provide – thus providing a windfall to AT&T-Illinois.

---

5 *Id*.

6 Smith Rebuttal at 9.

7 Direct Testimony of Stephanie A. Brissenden on behalf of AT&T Illinois, AT&T Illinois Exhibit 2.0, December 9, 2005 at 7 (emphasis added).

Q. HOW SPECIFICALLY DOES AT&T-ILLINOIS' PROPOSAL ENSURE THAT A WINDFALL WILL OCCUR?

A. Mr. Smith notes that Joint CLECs had criticized AT&T-Illinois' prior proposed tariff language because it incorporated a minimum billing increment of 10 amps per collocation arrangement per month.[8] In reality, the prior proposal that AT&T-Illinois had made was for a minimum billing increment of 10 amps per *DC Power Delivery Arrangement*. The only change in AT&T-Illinois' revised proposal is that it is now proposing to reduce the minimum billing increment to five amps *per DC Power Delivery Arrangement*,[9] but it is still based on a minimum billing "per Power Delivery Arrangement."[10] The difference between "per collocation arrangement" and "per Power Delivery Arrangement" is significant and one that causes the AT&T-Illinois' revised proposal to be objectionable from the Joint CLECs' and my perspective.

Q. WHY IS THIS MINIMUM BILLING INCREMENT STILL OBJECTIONABLE TO THE JOINT CLEC COLLOCATORS?

A. Quite simply, because it fails to reflect billing for the actual usage of DC Power that the collocator causes. Many collocators establish more than one DC Power Delivery Arrangement into the collocation arrangement. It is not uncommon for a CLEC to have three or more collocation bays, and therefore possibly establish three or more DC Power Delivery Arrangements at the CLEC's collocation site in an AT&T-Illinois central office. These DC Power Delivery Arrangements are typically targeted at specific pieces of equipment. As was described in detail in my Direct Testimony, the collocator pays for

[8] Smith Rebuttal at 12.

[9] *Id*.

the full cost of these DC Power Delivery Arrangements up front via nonrecurring charges. With AT&T-Illinois' revised proposed tariff language, the CLEC can pay several multiples of the five amp minimum charge rather than the actual usage that it causes AT&T-Illinois to incur.

Q. IS IT POSSIBLE FOR YOU TO GIVE A SPECIFIC EXAMPLE OF THE IMPACT OF THIS MINIMUM CHARGE ISSUE?

A. Yes. One of my clients in this proceeding, Covad, provided a confidential response to an AT&T-Illinois data request. In this data request, AT&T-Illinois sought information related to the DC Power Delivery Arrangements that Covad had in place in its collocation arrangements and the DC Power Consumption that Covad had across those DC Power Delivery Arrangements.[11]

The information in Covad's response is indicative of the type of windfall that will occur with AT&T-Illinois' proposed tariff language. Specifically, today, according to Covad's response, its actual consumption across all of its collocation arrangements in Illinois is *****BEGIN CONFIDENTIAL [redacted] END CONFIDENTIAL***** amps. However, if AT&T-Illinois' proposed minimum billing requirement was implemented, the billing that Covad would incur would be *****BEGIN CONFIDENTIAL [redacted] END CONFIDENTIAL***** amps – an increase of 13.73 percent. This 13.73 percent increase in DC Power Consumption payments from Covad to AT&T-Illinois represents a windfall to AT&T-Illinois in that it represents payment for DC amps that AT&T-Illinois did not provide.

[10] Smith Rebuttal, Schedule RAS-4, § 17 (revised).

Q. DO YOU ANTICIPATE THAT SIMILAR SITUATIONS WOULD OCCUR FOR ALL COLLOCATORS IN ILLINOIS?

A. Yes. To the extent that collocators have DC Power Delivery Arrangements that are drawing less than five amps of consumption, this situation would occur for them as well. Based on responses from other CLECs involved in this proceeding, other Joint CLECs will be affected in the same manner; the percentage of overpayment will differ, but the problem potentially applies to all of them.

Q. MR. NEVELS CLAIMS THAT THE FIVE AMP MINIMUM CHARGE IS NECESSARY TO PREVENT COLLOCATORS FROM USING COLLOCATION SPACE FOR THE "WAREHOUSING" OF EQUIPMENT,[12] COULD YOU COMMENT ON HIS TESTIMONY?

A. It is not altogether clear what "warehousing" means in the context of Mr. Nevels' testimony. If Mr. Nevels is attempting to suggest that minimal DC Power Consumption somehow prevents AT&T-Illinois from recovering its cost for the use of space within its central office, then Mr. Nevels' suggestion should be flatly rejected because it is not supported by any facts. Under current tariffs and/or Interconnection Agreements, CLECs pay for use of the space on a monthly recurring basis. First, CLECs pay a monthly rental fee for all of the space within the central office that is occupied by their collocation arrangement. I presume that this monthly fee is a cost-based (TELRIC) rate that compensates AT&T-Illinois for the use of its floor space as well as sending a correct economic signal to the CLEC as to the cost consequences of having unused or under-utilized collocation space in the central office. Moreover, each Collocator paid very

---

[11] Covad Communications Response to AT&T-Illinois Data Request No. 1.09 (Confidential).

[12] Nevels Rebuttal at 25.

hefty nonrecurring charges for the establishment of each of its collocation arrangements (caged or cageless) which represents a significant investment and payments to AT&T-Illinois. Second, the cabling that supports the DC Power Delivery Arrangements is paid for in advance through nonrecurring charges. As such, AT&T-Illinois is fully compensated for the use of its central office floor space and the DC Power Delivery Arrangement cabling regardless of the amount of DC Power consumed by the collocator. Therefore, to the extent that CLECs may have some limited equipment in a collocation space that is not currently being used, AT&T-Illinois has been and will continue to be compensated for the use the space in which that equipment is located and the engineering already implemented for that equipment. Mr. Nevels' rationale does not support AT&T-Illinois' proposed imposition of minimum monthly charges, even at the reduced level of five amps per Power Delivery Arrangement in AT&T Illinois' revised proposal.

Q. MR. NEVELS ALSO CLAIMS THAT A COLLOCATION ARRANGEMENT SHOULD ALWAYS DRAW AT LEAST 10 AMPS OF POWER.[13] COULD YOU PLEASE COMMENT ON HIS TESTIMONY?

A. Let me first quote Mr. Nevels' rebuttal testimony in this regard:

> A CLEC collocation that has the minimum equipment necessary for the purpose of accessing UNEs and/or interconnection would have, for example, multiplexing equipment, alarm panels and other equipment. This equipment would draw at least 10 amps of power when it is running.[14]

There are many problems with this aspect of Mr. Nevels' testimony. To begin with, Mr. Nevels' testimony fails to reflect the basic and fundamental difference between applying

[13] *Id*.

[14] *Id*.

the five amp minimum *to each DC Power Delivery Arrangement* and his belief that *a collocation arrangement* should use a minimum of 10 amps of power. As discussed above, a collocator may install several DC Power Delivery Arrangements into a collocation arrangement and the power the collocator consumes will be spread among each of these. It is not uncommon to have, for example, three DC Power Delivery Arrangements entering a collocation arrangement where one of these arrangements may have little or no power across it and yet have the total draw for the entire collocation arrangement be 10 amps. With AT&T-Illinois' proposal, instead of paying for the 10 amps that the collocation arrangement is using, the five amp minimum would be applied to each of the three DC Power Delivery Arrangements for a total of 15 amps – a windfall of 50 percent. If AT&T-Illinois is required to bill for the usage that the collocator actually incurs (thus not including any per amp minimum), this windfall will not occur.

Additionally, Mr. Nevels provides no basis for his belief that the multiplexing equipment and alarm panels would require 10 amps of power. In my experience, alarm panels require a negligible amount of power. Moreover, in my inspections of many collocation arrangements, I have observed smaller DSL applications (which involve a multiplexer) that drew less than 10 amps of power. In combination with the multiple DC Power Delivery Arrangement problem discussed above, the minimum billing requirement that Mr. Nevels proposes can cause AT&T-Illinois' billing for DC Power to greatly exceed the costs for the actual usage incurred by the collocator.

Finally, I do not believe that the following statement made by Mr. Nevels is technically correct: "A CLEC collocation that has the minimum equipment necessary for

the purpose of accessing UNEs and/or interconnection would have, for example, multiplexing equipment, alarm panels and other equipment."[15] The reality is that the minimum equipment required for access to UNEs or interconnection would be cross-connect equipment. This type of equipment requires only a minimum amount of power (less than five amps) and would allow for access to UNEs and cross-connects to transport or related services from other CLECs or AT&T-Illinois.

The bottom line is that there is no reason for AT&T-Illinois to be allowed to impose a minimum amperage charge that will result in billing collocators for more than their actual usage of DC power. Imposition of a minimum amperage amount, even at the reduced level specified in AT&T-Illinois' revised proposal, will still result in a windfall for AT&T-Illinois.

Q. HOW DO YOU PROPOSE HANDLING THIS MINIMUM BILLING REQUIREMENT?

A. My revisions to Schedule RAS-4 (as found in Schedule SET-3) eliminate the minimum billing requirement. Collocators are allowed to identify the amount of DC Power that they are consuming across the DC Power Delivery Arrangement in one amp increments with no minimum increment required. In this way, the collocator will pay for the amount of DC Power that the collocator actually consumes.

[15] *Id*.

IV. AT&T-ILLINOIS' SELF-CERTIFICATION PROPOSAL IS FLAWED

Q. WILL YOU PLEASE DESCRIBE THE REVISED AT&T-ILLINOIS PROPOSAL REGARDING HOW A CLEC WILL REPORT THE AMOUNT OF ITS ACTUAL USAGE?

A. Yes. Per Mr. Smith's Schedule RAS-4, it now appears that AT&T-Illinois is proposing a self-certification process in which the CLECs will report to AT&T-Illinois the amount of their actual usage.[16] The reported amounts will be used as the basis for AT&T-Illinois' billing of DC Power to each Collocator. Under AT&T-Illinois' revised proposal, the CLECs would be required to perform the self-certifications two times per year and would be required to conduct physical site inspections of each collocation arrangement for each semi-annual self-certification.[17] For the initial self-certification, AT&T-Illinois proposes to have the CLECs perform the physical site inspections within 30 days of the effective date of the tariff.[18] AT&T-Illinois' proposed revision also establishes an audit process in which AT&T-Illinois may conduct unlimited audits with penalties associated with under-reporting of the actual power usage by either 10% or 20% or more.[19] Finally, the AT&T-Illinois proposal does not explicitly allow for a dispute resolution process for the audit.

Q. IS THERE A THRESHOLD ISSUE WITH AT&T-ILLINOIS' SELF-CERTIFICATION PROPOSAL?

A. Yes. As can be seen from the outline that I provide above, AT&T-Illinois' proposal shifts the burden to CLECs to determine their power usage through physical readings at their collocation sites. Based on "how we got here" as described in my Direct

16 *See* Roman Rebuttal, Schedule RAS, § 16.

17 *Id.*. § 16A.

18 *Id.*, § 16A (first paragraph).

Testimony, which was basically not rebutted by AT&T-Illinois, there is no justification for shifting the costs and administrative burdens of determining actual power usage from AT&T-Illinois to the collocators. AT&T-Illinois' new solution would place all of the administrative and operational burdens and risks on the collocators. Although I demonstrated in my Direct Testimony that AT&T-Illinois should be able to implement a supply-side metering system, CLECs would also find it acceptable for AT&T-Illinois to take periodic usage readings using hand-held meters, as I described in my Direct Testimony, for the purpose of determining the amount that each CLEC should be billed for power consumption. CLECs are also willing to accept the proposed change from basing the collocation power charges on a per-kilowatt-hour used basis to a per-amp used basis, at AT&T Illinois' proposed rate of $9.80 per amp per month. However, CLECs do not find it acceptable that they should also have to take on the costs and administrative burdens of actually taking power usage readings when this problem arose entirely as a result of AT&T-Illinois' implementation of a faulty system of power metering. AT&T Illinois can take these readings using the same hand-held equipment that AT&T Illinois presumably expects the CLECs to use under its proposal. AT&T Illinois can take readings on a periodic basis for billing purposes, and would then have the security of knowing that CLECs are being billed for the actual amount of power that is being used. This process would be much simpler than implementing self-certifications, audits, and penalties to prevent CLECs from under-reporting their power usage. Further, AT&T-Illinois' proposed approach necessitates the introduction of a complex and potentially

[19] *Id.*, § 21.

controversial system of periodic audits by AT&T-Illinois, which would be unnecessary if AT&T-Illinois simply takes the readings of the collocator's power usage for billing purposes. I believe that such a solution would be the most cost-efficient method of accomplishing AT&T-Illinois' stated goal of ensuring that CLECs are paying for the power that they are consuming.

Q. SHOULD AT&T ILLINOIS BE ALLOWED TO IMPOSE AN ADDITIONAL CHARGE FOR TAKING THE POWER USAGE READINGS?

A. In theory, yes. However, in this case AT&T-Illinois has not proposed such a charge (because its revised proposal does not contemplate such an approach) and it is too late in the case to introduce such a charge or to litigate its cost basis. Moreover, as I have emphasized in my Direct Testimony, CLECs have paid millions of dollars in non-recurring charges for AT&T Illinois' metering arrangements which were supposed to result in monthly power usage information for billing purposes, without any involvement by the CLEC. In a future filing, AT&T-Illinois could propose a standard charge for taking the power readings, based on its time and material costs. Of course, AT&T-Illinois would have to demonstrate that the costs on which it bases the proposed charge are not already recovered through other charges.

Q. IF THE COMMISSION WERE TO DECIDE THAT CLECS SHOULD BE REQUIRED TO REPORT ACTUAL USAGE TO AT&T-ILLINOIS, DO YOU HAVE SPECIFIC COMMENTS, CONCERNS, AND RECOMMENDATIONS ON AT&T-ILLINOIS' NEW PROPOSAL?

A, Yes, I do. The remainder of Section IV and all of Section V provide my analysis on AT&T-Illinois' revised proposal. As I mentioned earlier, I have attached Attachment SET-3 which illustrates my proposed changes to the revised AT&T-Illinois tariff proposal.

Q. COULD YOU PLEASE COMMENT ON AT&T-ILLINOIS' PROPOSAL RELATED TO THE COLLOCATOR SELF-CERTIFICATION FOR POWER CONSUMPTION?

A. Yes. There are several significant concerns with AT&T-Illinois' self-certification proposal. It is important to keep in mind, however, that the proposal that AT&T-Illinois has put forward now places *all* of the burden and expense of metering DC power on the collocators. Previously, collocators paid upfront for a metering system that allowed AT&T-Illinois (albeit inaccurately) to collect the DC power usage information, for a monthly fee, for the collocators. However, now AT&T-Illinois has proposed tariff language that entirely abandons the metering system and places the burden of collecting the usage information entirely on collocators. This burden is significant and will be costly to CLECs to implement as there will be additional manpower and time required to complete the physical readings and complete the paperwork for the self-certifications as well as to respond to unlimited audits. At a minimum, therefore, if it accepts this concept at all, the Commission should take account of what collocators realistically and practically can do to implement self-certification.

Q. WHAT IS THE FIRST CONCERN THAT YOU HAVE WITH AT&T-ILLINOIS' SELF-CERTIFICATION PROPOSAL?

A. AT&T-Illinois sets out the following proposal:

> 16A. Within thirty (30) days of the effective date of this tariff section or the establishment of a new collocation arrangement, Collocator will submit to SBC Illinois a signed self-certification stating that it has performed a physical site, measured verification of the total actual DC current drain, in amperes, for each of its power delivery arrangements. This initial self-certification shall contain the measured total actual DC current drain in amperes and this shall be used by SBC Illinois for billing on a per amperage basis until it is adjusted as set forth elsewhere in this tariff.[20]

The primary practical and real problem with this language is that the 30-day period to file the first certification is completely unreasonable and wholly unworkable for CLECs. Specifically, my clients (Covad, McLeodUSA, MPower, and XO) have, in some cases, several hundred DC power delivery arrangements in scores (for some of my clients in excess of 100) of AT&T-Illinois' central offices that will have to be inspected. These companies simply do not have the staff to perform all of these physical inspections and self-certifications across the State of Illinois in a 30-day period. Moreover, Illinois may not be the only state in which such a self-certification process is implemented, thereby further complicating the CLECs' staffing issues with regard to performing these self-certifications. Finally, assuming that AT&T-Illinois were allowed to back-bill the collocators for some period of time prior to the initial reading being submitted, it does not seem necessary for the initial self-certification to be performed in 30 days for all of the collocation arrangements.

[20] Smith Rebuttal, Schedule RAS-4, § 16A.

Q. DO YOU HAVE A SUGGESTION FOR HOW TO HANDLE THE INITIAL SELF-CERTIFICATIONS?

A. Yes. AT&T-Illinois already has a metered reading for each of the DC power delivery arrangements in Illinois via the existing return-side meter reading system. While admittedly this system is inaccurate, it could be used to establish a baseline billing level for DC power, for now, until such time as the CLECs have been able to perform the physical self-certifications. Specifically, AT&T-Illinois could establish the baseline meter reading as the average of the last three months of usage for each of the existing DC power delivery arrangements. This baseline would be used for billing as of the effective date of the tariff until CLECs completed their respective initial self-certification for their collocation arrangements in Illinois. The CLECs could then have a more reasonable 180-day period in which to perform the initial self-certification.[21] AT&T-Illinois and the CLECs could then true-up the differences between the estimate (based on the three-month average of the return-side metering) and the actual self-certification metered reading from the effective date of the tariff. These differences could either be in the CLECs favor or AT&T-Illinois' favor and would be netted out as appropriate.

Q. AT&T-ILLINOIS ALSO INTENDED THE 30-DAY PERIOD TO APPLY TO NEW DC POWER DELIVERY ARRANGEMENTS. DO YOU BELIEVE THIS INTERVAL IS APPROPRIATE FOR THIS CIRCUMSTANCE?

A. Again, no. Even for new installations, the 30-day period is unreasonable. In practice, CLECs have to ensure that the DC power delivery arrangement is in place prior to installing equipment that will utilize this arrangement. Sequencing the equipment

[21] For several of Joint CLECs, the 180-day period for the initial self-certification is an absolute minimum. It is my understanding that there is no leeway in this time frame given limited resources.

installation within 30 days of the completion of the DC power delivery arrangement may be too tight of an interval for there to be any measurable usage of the DC power delivery arrangement, as the equipment may not even be installed in those 30 days. A more reasonable approach would be to set an interval of 90 days for new DC power delivery arrangements or within 30 days of when the CLEC knows that equipment has been turned up to utilize the DC power delivery arrangement, whichever is earlier.

Q. DO YOU HAVE ANY OTHER CONCERNS WITH AT&T-ILLINOIS' SELF-CERTIFICATION PROPOSAL?

A. Yes. AT&T-Illinois' self-certification language (Section 16A, 2nd paragraph) provides, in part, as follows:

> On a semi-annual basis after the initial self-certification, Collocator will submit to SBC Illinois a signed self-certification stating that it has performed a physical site, measured verification of the total actual drain, in amperes, for each of its power delivery arrangements. Each semi-annual self-certification shall contain the measured total actual DC current drain in amperes which will be used by SBC Illinois to adjust billing on a per amperage basis, if different than the previous self-certification.[22]

Again, assuming for this discussion that the CLECs would be responsible for taking readings at all, the CLECs recognize a need to establish a baseline usage of DC power for each of the DC power delivery arrangements by making a set of initial physical power usage readings. However, there is no reason to perform a "physical site, measured verification" of every DC power delivery arrangement in Illinois every six months. If AT&T-Illinois needs a written self-certification that the DC Power Consumption is unchanged from the prior self-certification, this can be provided without a physical

[22] *Id*.

verification. A "physical site, measured verification" should only be required if the CLEC knows that it has added or removed equipment from the collocation arrangement. In this situation, the CLEC will be able to perform this metering of the power when the CLEC's personnel are on site for the work of adding or removing the equipment. In this way, the measured verification could be performed in a rational and efficient manner.

Q. HAS AT&T-ILLINOIS PROVIDED ANY BASIS FOR ITS PROPOSAL OF "PHYSICAL SITE, MEASURED VERIFICATION" EVERY SIX MONTHS?

A. Not really. There was no basis for this offered in AT&T-Illinois' testimony. I would point out that Verizon, in New York, when it implemented a similar self-reporting mechanism for CLECs, did not require six-month reports from the CLEC or physical self-certifications. Instead, the following identifies its attestation requirements:

> **Scheduled Attestations –** Annually, the CLEC must submit a written statement signed by a responsible officer of the company, which attests that it is not exceeding the total load of power as ordered on the collocation application.[23]

AT&T-Illinois is not Verizon, but given that AT&T-Illinois has offered no explanation for why there should be a physical inspection by the CLEC for power usage every six months, the Commission should at least consider that Verizon only seeks an annual written attestation. I would also point out that if the collocator has not added or removed equipment from the collocation arrangement, there should be no reason for a meaningful change in the power consumed by a DC power delivery arrangement. Further, AT&T-Illinois has penalty and audit provisions built into its proposed language to protect it against the collocator "gaming the system" (*i.e.*, submitting erroneous self-certifications,

whether intentionally or in error).[24] In short, my modification to Mr. Smith's proposed language reflects only an annual written self-certification and requires a physical measurement of the DC power only when equipment is added or removed from the collocation arrangement.

Q. DO YOU HAVE ANY OTHER CONCERNS WITH AT&T-ILLINOIS' SELF-CERTIFICATION PROPOSAL?

A. Yes. AT&T-Illinois' proposed language needs to be clarified to make it clear that the CLEC can self-certify to increase or reduce its power usage at any time. There is a portion of AT&T-Illinois' proposed language that could potentially be misconstrued:

> If Collocator increases or decreases its total actual DC current drain on a given power delivery arrangement by more than ten (10) amperes between self-certifications, it shall submit to SBC Illinois a statement of its revised Collocator-Specified Amperage Load and the amperes specified therein shall be used by SBC Illinois for billing until it is adjusted as set forth elsewhere in this tariff.[25]

One reasonable interpretation of this language is that AT&T-Illinois wanted to set a threshold for collocators to provide a revised physical metered self-certification. In other words, if the collocator's power usage changes by at least 10 amps, then it is required to revise its self-certification.

The concern I have with this language is that it *not* be read to mean that a collocator could not revise its Collocator-Specified Amperage Load *unless* it had changed by at least 10 amps. I do not believe that this is what AT&T-Illinois meant by

---

[23] Verizon New York Inc., PSC NY No. 8 – Communications, Section 15, Second Revised Page 17, Paragraph 15.3.5.C.

[24] Smith Rebuttal at 10.

[25] *Id.* at Schedule RAS-4, § 16A.

its language. However, to be explicit, I have modified the tariff language to make it clear that collocators should be permitted to self-certify at any time to report an increase or decrease in power consumption.

Q. DO YOU HAVE AN ALTERNATIVE PROPOSAL THAT COULD ALLAY SOME OF YOUR CONCERNS WITH AT&T-ILLINOIS' SELF-CERTIFICATION PROPOSAL?

A. Yes. As I mentioned earlier, as a threshold matter, CLECs recommend that the Commission require AT&T-Illinois to conduct periodic readings to establish the power used for purposes of billing for DC power consumption. If the Commission concludes that the CLECs should have any responsibility at all for taking power usage readings one alternative that could be considered to offset some of the concerns that the self-certification process raises is to require AT&T-Illinois to offer an option where AT&T performs the measurement of the DC Power itself for a set rate paid by the collocators rather than requiring this work be performed by the collocators. AT&T-Illinois has onsite personnel in virtually all of the central offices in which collocators have equipment. These personnel could perform the physical metering of the DC Power Delivery Arrangements, and incorporate the measurements into the billing to the CLEC. The CLEC could then challenge the validity of the measurement if it believed that it was significantly wrong. This approach would also eliminate the need for AT&T Illinois' proposed auditing requirements (which I discuss next), the timing concerns that we have raised regarding the initial physical metering self-certification, and the concerns over requiring this physical metering every six months, as AT&T-Illinois' revised tariff proposal would require. A rate to recover AT&T Illinois' cost for performing the

metering would have to be developed, but this approach might be a far better way to proceed than AT&T-Illinois' current proposal which requires all of the work fall on the collocators under AT&T Illinois' desired timeline.

Q. WHAT SHOULD BE THE CHARACTERISTICS OF AT&T ILLINOIS' RATE FOR TAKING READINGS?

A. Consistent with the discussion earlier in this testimony, the rate should be a standard, stated rate (*i.e.*, not an "individual case basis" rate) that should be based on AT&T Illinois' time and materials to perform the readings. While I recognize that there may be some differences in costs to take readings from site to site, these should not be so significant that a standard rate cannot be developed. Again, this rate should recover only costs that AT&T Illinois is not recovering through other, existing charges.

V. AT&T-ILLINOIS' AUDIT PROVISIONS ARE INCOMPLETE

Q. AT&T-ILLINOIS SUGGESTS THAT YOU PROPOSED THE USE OF AUDITS AND THUS, ON THAT BASIS, PROPOSED AN AUDIT PROCEDURE. DO YOU AGREE WITH THE CHARACTERIZATION OF YOUR DIRECT TESTIMONY?

A. I agree that I stated that other ILECs, such as Verizon, implemented an audit procedure and suggested that such procedures could be implemented in AT&T-Illinois' tariff. I did not intend to suggest that it is reasonable or warranted to allow the unfettered use of audits or other specific aspects of an audit process such as AT&T-Illinois now suggests.

Q. DO YOU HAVE ANY CONCERNS WITH AUDIT PROVISIONS THAT AT&T-ILLINOIS HAS PUT FORWARD IN ITS REVISED PROPOSAL?

A. Yes. I do. *First*, it may not have been AT&T-Illinois' intention, but it appears that the back-billing that it proposes in the language that follows is excessive:

> 21. SBC Illinois may periodically validate Collocator's actual usage at a power delivery arrangement. If SBC Illinois detects a discrepancy of 10% or more between the actual

> usage and the Collocator-Specified Amperage Load at a power delivery arrangement, and if the discrepancy is at least 5 amps, SBC Illinois will provide notice of the discrepancy to Collocator. No sooner than ten (10) days after the date of this notice, SBC Illinois will update the Collocator's billing to reflect the SBC Illinois-validated usage, *covering the period from the present back to the* ***earlier*** *of the most recent collocation application, the most recent submission of a revised Collocator-Specified Amperage Load, or the most recent self-certification*. SBC Illinois will also update the Collocator's billing going-forward to reflect the SBC Illinois-validate usage.[26]

The problem with this language is the meaning of the term "earlier" as it relates to the timing of the prior application, revised Collocator-Specified Amperage Load, or self-certification. In other words, AT&T-Illinois potentially seeks to be permitted to back-bill to the earliest of the CLEC collocation application, specified usage, or self-certification. I would anticipate that of these three categories, the *earliest* (what AT&T-Illinois potentially seeks) would always be the application associated with the installation of the DC Power Delivery Arrangement.[27] My concern with this language is that it appears to open the door for AT&T-Illinois to back-bill from the time that it identifies the discrepancy all the way back to when the DC Power Delivery Arrangement began to be used. Consider that the application for a DC Power Delivery arrangement could have been many years in the past. Back-billing for an open-ended period of time, back to when an application was placed for a DC Power Delivery Arrangement, could be excessive.

[26] Smith Rebuttal, Schedule RAS-4, § 21 (emphasis added).

[27] I believe that many of the Joint CLECs' collocation arrangements date back to at least 1998.

Q. WHEN AT&T-ILLINOIS IDENTIFIES A DISCREPANCY, DOES AT&T-ILLINOIS REALLY KNOW WHEN THE DISCREPANCY BEGAN?

A. Not really. As such, attempting to back-bill to the earliest date possible – the application for the DC Power Delivery Arrangement, most likely – does not seem reasonable.

Q. DO YOU HAVE A SUGGESTION FOR HOW TO ADJUST THIS LANGUAGE TO MAKE IT LESS OPEN-ENDED?

A. Yes. One possibility would be to modify the term "earlier" to state "the most recently dated" instead. The sentence would then read as follows:

> No sooner than ten (10) days after the date of this notice, SBC Illinois will update the Collocator's billing to reflect the SBC Illinois-validated usage, *covering the period from the present back to the* ***most recently dated*** *of the most recent collocation application, the most recent submission of a revised Collocator-Specified Amperage Load, or the most recent self-certification*.

In this way, the language would be clear that AT&T-Illinois would back-bill to the date of the latest reported usage from the collocator to AT&T-Illinois.

Another alternative would be to select fixed intervals over which the back-billing for the discrepancies would occur. Specifically, if a discrepancy were identified by AT&T-Illinois, a fixed period of six months could be used over which the discrepancy back-billing would apply regardless of when the discrepancy began. In this way, there is no ambiguity over how long that the higher amperage level will apply for back-billing purposes.[28]

[28] I have not included proposed language regarding this alternative proposal. However, if the Administrative Law Judge and/or Commission would like to see how this alternative proposal could be implemented, I can prepare the language for consideration.

Q. ARE THERE OTHER CONCERNS THAT YOU HAVE WITH THE AUDIT LANGUAGE THAT AT&T-ILLINOIS HAS PROPOSED?

A. Yes. Generally, the language that AT&T-Illinois has proposed is not sufficiently detailed as to how disputes will be addressed and resolved between AT&T-Illinois and the collocator. Because of the lack of detail in the AT&T-Illinois language, I have developed more comprehensive audit language that is included in my revisions of Schedule RAS-4 (as found in Schedule SET-3 attached to this testimony). Of importance to CLECs, in fleshing out the process, I suggest the following revisions:

a. If AT&T-Illinois is going to perform audits, some reasonable limitations should be placed on the frequency of the audits. I propose that the number of audits that AT&T-Illinois can perform be limited to one audit per calendar year for a collocation arrangement, with one exception. Joint CLECs propose the limitation of one audit per year for any given collocation arrangement to limit the administrative burdens on the CLECs. Audits should be meaningful and necessary. Placing some limitation upon which the CLEC can count on, rather than being inundated with unlimited audits can place incentives on both sides (AT&T-Illinois and CLEC) to act responsibly.

b. Clarify that for any power audit performed by AT&T-Illinois, AT&T-Illinois will provide a copy of the results of the audit. This requirement would apply to any audit performed by AT&T-Illinois regardless of whether it found a discrepancy of 10 percent or more with the reported usage. This would enable the CLECs to keep apprised of the AT&T-Illinois' findings and to enable CLECs to determine if there is a problem with a particular arrangement or if the self-certification needs to be revised.

c. Clarify the tiered approach proposed by AT&T-Illinois to reflect the actions, if any, AT&T-Illinois can take in the event of reporting discrepancies. I have created three different subsections, to deal with each tier of the proposal. It would clarify that for discrepancies between 0-9 percent, AT&T-Illinois will not take any action against CLEC. For discrepancies between 10-19 percent, AT&T-Illinois may implement the revised power usage after a specified period of time that enables CLEC to accept or to dispute the reading. For discrepancies above 20 percent, AT&T-Illinois may implement the revised power usage after a specified period of time that allows for CLEC to accept or to dispute the reading. This latter provision would also allow AT&T-Illinois to recover the reasonable costs of the audit for discrepancies above 20 percent.

d. Extend the time period CLECs have to dispute or to agree to AT&T-Illinois' determination of discrepancies of 10 percent or more from 10 days to 30 days. Joint CLECs propose the time period be extended for practical reasons. The penalty for determining a discrepancy of 10 percent or more is, at the very least, that AT&T-Illinois can back-bill the CLEC for the difference in the reported usage, and depending on the date of the last self-certification, that back-bill could be significant. As a result, CLECs want a reasonable period to review the AT&T-Illinois determination; identify if a CLEC technician needs to check the power arrangement in question through a physical inspection; identify if there is a need for a joint measurement to resolve the dispute, if any; and process a response in a timely manner so that CLECs are not required to dispute findings simply because they have run out of time to make an informed decision. This process may need to be followed for each audit determination where AT&T-Illinois will

seek to increase the CLEC's billing. Sufficient time must be given for a CLEC to review those notifications and determine if it needs to dispute the determination. Having a longer period to review the audit findings should enable CLECs to make informed decisions as to whether a dispute needs to be raised, and should result in fewer disputes being raised. Again, from the Joint CLECs' perspective, the time period must be at least 30 days since they do not have resources standing by to review each audit determination and such a request will have to be worked into the work schedule. Finally, AT&T-Illinois will not be harmed by the longer period of time since it will be allowed to back-bill to the date of the latest self-certification or collocation application, whichever is more recent (per my earlier discussion).

e. Clarify that there is an opportunity for the CLEC to dispute and to identify which dispute resolution processes apply. AT&T-Illinois' revised proposal is silent as to whether CLECs have the right to dispute the audit findings. My recommendation is to specify that right. However, because some CLECs order collocation arrangements from their interconnection agreements (which sometimes refer to the tariff), Joint CLECs recommend that the dispute resolution process outlined in the interconnection agreement or collocation tariff, whichever is applicable, would govern the process. Rather than create a new dispute resolution process, each CLEC should be able to use its existing dispute resolution process.

VI. AT&T-ILLINOIS' FUSE TESTIMONY AND REVISED PROPOSAL VIOLATES SOUND ENGINEERING

Q. HAVE YOU REVIEWED MR. NEVELS' TESTIMONY RELATED TO THE FUSING LANGUAGE IN THE AT&T-ILLINOIS TARIFF?

A. Yes.

Q. HAVE YOU REVIEWED THE LANGUAGE IN MR. SMITH'S SCHEDULE RAS-4 IDENTIFYING AT&T-ILLINOIS' PROPOSED TARIFF LANGUAGE RELATED TO FUSING?

A. Yes.

Q. DO YOU HAVE ANY COMMENTS ON HOW MR. NEVELS' TESTIMONY RELATES TO THE PROPOSED TARIFF LANGUAGE?

A. Yes. Mr. Nevels' testimony contains the following question and answer:

> **Q. PLEASE DESCRIBE THE MODIFICATIONS TO AT&T'S (*sic*.) ILLINOIS' FUSING PROPOSAL.**
>
> A. AT&T Illinois is willing to fuse the CLECs (*sic*.) power arrangement at 100% of the rated capacity of the feeder cable, provided that this amount is less than 200% of the actual load amps.[29]

Mr. Nevels later testifies along the same lines as follows:

> **Q. MS. STEWART EXPRESSES HER CONCERNS WITH THE PROVISIONING OF DC POWER BASED UPON WHAT THE CLEC "ORDERS". COULD YOU BRIEFLY DISCUSS MRS (*sic*.) STEWART'S CONCERNS?**
>
> A. Ms. Stewart believes that any fusing above 200% of the actual power consumed could be in violation of Part 785 of the Commission's rules. To address this issue, AT&T Illinois proposes to fuse a CLECs (*sic*.) arrangement at 100% of the rated capacity of the feeder cable but *not to exceed 200% of the actual usage load requested by the CLEC in its initial self-certification*. I believe that this modification should address Ms. Stewart's concerns on this point.[30]

Both of these excerpts from Mr. Nevels' rebuttal testimony describe a "proposal" or "modification" that AT&T-Illinois has apparently made to the fusing language to

[29] Nevels Rebuttal at 22-23.

[30] *Id.* at 30.

implement a fusing option of 100 percent of the rated capacity of the feeder cable or 200 percent of the actual usage load requested by the CLEC – whichever is lower. There are two problems with Mr. Nevels' testimony: (1) consistency, and (2) technical accuracy.

Q. WHAT IS THE CONSISTENCY PROBLEM WITH MR. NEVELS' TESTIMONY?

A. Quite simply, Mr. Nevels' testimony does not agree with the language contained in Mr. Smith's Schedule RAS-4 – the proposed collocation tariff language. I have reviewed the entirety of Schedule RAS-4 and find no reference to fusing being specifically tied to percentages, as described by Mr. Nevels. Instead, the language that AT&T-Illinois puts forward is as follows:

> Upon request, SBC Illinois will project manage the change of the power fusing on the Collocator's power services associated with serving an existing Physical or Virtual Collocation Arrangement when power fuses are being reduced at the SBC Illinois BDFB. When power fuses are being reduced the minimum amperage permitted at the BDFB will be 5 AMPs. The work activities applicable to reduction of power fuses on the SBC Illinois BDFB includes: power fuse rearrangement, restenciling power and tag cables, updating records, and vendor engineering.[31]

Similar language exists in Section 19 related to fuse reductions on the DC Power Board. My point, however, in quoting this language is that there is nothing here related to the specific ratios that must exist between usage and the fuse size, as Mr. Nevels claims. Moreover, this is the extent of AT&T-Illinois' proposed language related to fusing.

[31] Smith Rebuttal, Schedule RAS-4, Section 18.

Q. NOTWITHSTANDING MR. NEVELS' APPARENT MISMATCH WITH THE ACTUAL LANGUAGE IN THE TARIFF, DO YOU HAVE ANY PROBLEMS WITH MR. NEVELS' TESTIMONY RELATED TO FUSING?

A. Yes. There are several concerns that should be raised. *First*, Mr. Nevels apparently dismisses the current fusing method used by AT&T-Illinois of fusing the DC Power Delivery Arrangement at a level of 125 percent of the specified amount for the DC Power Delivery Arrangement.[32] However, the reality is that the proposal that Mr. Nevels now espouses (the 200 percent ratio) is entirely inconsistent with AT&T's own engineering requirements and the 125 percent ratio (when properly understood and applied) is completely consistent with those requirements.

Q. WHAT ARE AT&T'S INTERNAL ENGINEERING REQUIREMENTS?

A. These are found in the "SBC LEC Technical Publication – Detailed Engineering Requirements." This document contains detailed requirements in many areas including DC power engineering that AT&T uses throughout its local exchange properties.[33] Section 6.3 provides a section discussing engineering for "Protector and Cable Sizing."[34] In this section, AT&T describes the formula for sizing DC power delivery cables precisely as I documented in my Direct Testimony.[35] Moreover, this section describes several key engineering criteria that are used for fusing:

---

32 Nevels Rebuttal at 22.

33 SBC Local Exchange Carriers – Detail Engineering Requirements, SBC-TP-76400, Section 1, Paragraph 1.1.1, Page 1-1, November 1, 2005.

34 SBC Local Exchange Carriers – Detail Engineering Requirements, SBC-TP-76400, Section 12, Paragraph 6.3, Pages 12-11 to 12-13, November 1, 2005.

35 SBC Local Exchange Carriers – Detail Engineering Requirements, SBC-TP-76400, Section 12, Paragraph 6.3.2, Pages 12-11 to 12-12, November 1, 2005.

> 6.3.1 Overcurrent protection (fuses or circuit breakers) and secondary distribution cables are sized using List 2 current drain. List 2 current drain represents the peak current for a circuit under worst-case operating conditions. Worst case could be the constant power load requiring maximum current at minimum operating voltage.
>
> 6.3.6 Fuse size shall be larger than the load on the cable. Multiply the List 2 load by 1.25 (125%) to determine the correct protector size. … Once the protector is sized, assure the ampacity of the cable exceeds the rating of the protector. The cable size may be increased as necessary to meet the requirements for ampacity. The current capacity of the cable is usually only an issue with very short runs, since cables are sized first on voltage drop, then current capacity.[36]

Q. DO THESE AT&T INTERNAL STANDARDS COMPORT WITH YOUR UNDERSTANDING OF STANDARD ENGINEERING PRACTICES FOR DC POWER DELIVERY ARRANGEMENTS?

A. Yes. In my dealings with all of the incumbents across the country, this is the standard engineering practice for DC Power Delivery Arrangements. I also want to underscore that the standard processes that AT&T-Illinois uses to engineer power arrangements for itself and CLECs, as cited above, also form the basis for AT&T-Illinois' engineering of power to CLECs in the established collocation arrangements.

Q. MR. NEVELS PROVIDED AN ILLUSTRATION OF HOW FUSING WOULD WORK. COULD YOU WALK THE COMMISSION THROUGH AN EXAMPLE OF HOW THESE ENGINEERING PRINCIPLES WOULD WORK IN PRACTICE?

A. Yes. First, let us assume that the collocator has ordered a 40-amp DC Power Delivery Arrangement. AT&T's standard practice according to the engineering practice cited above is to take this amperage and multiply it by 125 percent to identify the level of

fusing that should be placed on the DC Power Delivery Arrangement. In this instance, the fusing would be set at 50 Amps. According to this engineering practice: "[o]nce the protector is sized, assure the ampacity of the cable exceeds the rating of the protector." In other words, once the fuse size is determined, the diameter of the cable is determined using the formula I described in my Direct Testimony or that is found in Section 12, Paragraph 6.3.2 of the AT&T Technical Publication.[37] This cable will be sized with a diameter that is sufficient to allow for at least a 50-Amp current.

Q. IS THERE ANY DISCUSSION IN THE TECHNICAL PUBLICATION OF A 200 PERCENT FACTOR FOR CURRENT USAGE AS APPLIED TO FUSING?

A. No. There is no reference to this because it fundamentally violates good engineering practice because the current that exists on a circuit during typical operation in no way "represents the peak current for a circuit under worst-case operating conditions" – which is what is required for good engineering. AT&T-Illinois' proposed tariff language does not reference the 200 percent factor that Mr. Nevels discusses because if it did so, the tariff would violate good engineering practice for DC Power Delivery Arrangements -- which are documented in AT&T's own Technical Publications.

---

[36] SBC Local Exchange Carriers – Detail Engineering Requirements, SBC-TP-76400, Section 12, Paragraphs 6.3.1 and 6.3.6, Pages 12-11 to 12-12, November 1, 2005.

[37] SBC Local Exchange Carriers – Detail Engineering Requirements, SBC-TP-76400, Section 12, Paragraph 6.3.2, Pages 12-11 to 12-12, November 1, 2005.

Q. NOTWITHSTANDING THE FACT THAT IT DOES NOT APPEAR IN THE PROPOSED TARIFF, MR. NEVELS CLAIMS THAT HIS PROPOSED LANGUAGE ADDRESSES YOUR CONCERNS REGARDING FUSING, AS RAISED IN YOUR DIRECT TESTIMONY.[38] DOES IT DO SO?

A. Absolutely not. My concerns raised in Direct Testimony continue. *First*, as already discussed above, the DC Power Delivery Arrangement cabling capacity and fuse capacity are intended to be engineered in concert with one another. Mr. Nevels' proposal that fusing will be set at 200 percent of the actual load amps would be completely inconsistent with this engineering practice – which AT&T itself documents in its Technical Publication.[39]

Second, all of the engineering guidelines described above reference the use of "peak current for a circuit under worst-case operating conditions" where "worst-case … could be the constant power load requiring maximum current at minimum operating voltage." As described in my Direct Testimony, this is commonly referred to as List 2 Drain. However, this current level absolutely is not the "actual load amps" as proposed by Mr. Nevels. Using Mr. Nevels' proposal would fly in the face of AT&T's own Technical Publication and good engineering practice for DC Power Delivery Arrangements used across the country for telecommunications applications.

Third, I indicated in my Direct Testimony that one of the most critical aspects of this proposal is that it will require collocators to regularly change out fuses at the BDFB to correspond to the 200 percent requirement. Such a requirement could have severe

[38] Nevels Rebuttal at 24.

[39] *Id.* at 23.

adverse impacts on the collocator both from a cost perspective and an operational perspective.

Q. COULD YOU GIVE AN EXAMPLE OF HOW THIS REQUIREMENT COULD LEAD TO FUSE CHANGES ON THE PART OF THE COLLOCATOR?

A. Yes. I need to first explain that Mr. Nevels' revised proposal is unclear as to whether each feed in a DC Power Delivery Arrangement would be fused at 200 percent of the total power being delivered over the combined feeds, or if the fusing would be at 100 percent on the A-Feed of the DC Power Delivery Arrangement and 100 percent on the B-Feed of the DC Power Delivery Arrangement for a total of 200 percent. As such, I will provide an example assuming both possibilities to identify the problems that could occur.

To begin, in my example, the CLEC has ordered the 40-Amp arrangement that I described above. With this arrangement, the AT&T engineering guidelines require that a 50-Amp fuse be utilized in the arrangement and the conductors themselves also be sized to support at least 50-Amps of DC power. Moreover, for this example, assume that presently the DC Power Delivery Arrangement is being used to deliver a total of 9 Amps of power to the collocation arrangement.

According to Mr. Nevels' revised proposal, assuming a 200 percent fusing on each feed, a 20-Amp fuse would be placed on the A-feed and B-feed.[40] This would require the change out of the existing 50-Amps fuses with the 20-Amp fuses placing the delivery of power to the collocation arrangement at risk as described earlier. Specifically, any time there is a change out of fuses, the risk exists that both sides (A-

[40] Nine amps multiplied by 200 percent (18) rounded to the next higher standard fuse size – 20 Amps.

Feed and B-Feed) of the DC Power Delivery Arrangement can be interrupted during the fusing process, thereby isolating the equipment from power altogether and causing a complete shut-down of the equipment.

Now if Mr. Nevels' proposal involves the placement of 100 percent fusing on each feed, a 10-Amp fuse would be placed on the A-feed and B-Feed. With this interpretation of his proposal, there are many other problems that come into play now that this undersized fuse has been placed on the DC Power Delivery Arrangement. Specifically, with modern telecommunications equipment, all of the power to the equipment can be drawn over the A-Feed or the B-Feed at any time. This is referred to as redundant power. The equipment is designed this way so that the loss of one of the feeds will not interrupt the operation of the equipment. As such, the entire 9 Amps in my example can run across the A-Feed or the B-Feed. This would be less than the 10-Amp fuse. However, if the DC power plant moves into distress, major problems arise with the use of the 10-Amp fuse. I explained in my Direct Testimony that "distress" for the power plant is a situation where the voltage of the power plant begins to decrease, leading to a corresponding increase in the current drawn by the equipment, so that the power stays the same. Typically, the equipment is designed to continue operating until the voltage reaches approximately 42 Volts. At this point, with our 9-Amp example, the actual current being drawn at 42 Volts would be approximately 10.3 Amps. At 10.3 Amps, the 10-Amp fuse would blow, moving the entire current over the B-Feed, which would also blow with its 10-Amp fuse. In short, with the 100 percent fusing on the A-Feed and B-Feed for a total of 200 percent, it is quite reasonable to anticipate that the equipment in

the collocation arrangement would lose its power entirely, simply because of this erroneous approach to fusing.

Q. IS IT POSSIBLE THAT VERY SIMPLE AUGMENTS TO THE COLLOCATION ARRANGEMENT COULD LEAD TO FUSE CHANGES?

A. Yes. In my example, the current draw over the DC Power Delivery Arrangement is 9 Amps. However, with the addition of just a single card, the current could increase to 11 Amps. At this point, using the 200 percent on each feed interpretation, the fusing would change to 25 Amps and using the 100 percent on each fee interpretation, the fusing would change to 15 Amps. It simply is unreasonable and inefficient from an engineering perspective to change out the fusing at a BDFB simply because of the addition of a single card into a piece of equipment. Moreover, from an operational perspective, every change out of fusing at the BDFB places the power to the equipment in unnecessary jeopardy.

Q. WHAT WOULD HAPPEN TO YOUR EXAMPLE AS ADDITIONAL PIECES OF EQUIPMENT WERE ADDED TO THE COLLOCATION ARRANGEMENT THAT WERE MORE THAN A SINGLE CARD?

A. Typically, CLECs will have the DC Power Delivery Arrangement from the AT&T-Illinois BDFB terminate in a power distribution panel within the collocation arrangement. This allows for the fusing of subsequent feeds to individual pieces of equipment within the collocation arrangement. If another multiplexer were added to the collocation arrangement, the increase in power to the collocation arrangement would increase from the 9 Amps in my example to approximately 18 Amps. Under proper engineering, the 50-Amp fuse would not be changed at the BDFB and the CLEC would simply place the appropriately sized fuse in its power distribution panel for the new piece of equipment. However, with Mr. Nevels' revised proposal, the new DC Power draw of 18 Amps would

require that the fuse be changed from 20 Amps to 40 Amps (assuming the 200 percent per feed interpretation), or from 10 Amps to 20 Amps (assuming the 100 percent per feed interpretation). Again, in either case, the power to the equipment has been placed in unnecessary jeopardy for this fuse change.

If yet another multiplexer were placed into the collocation arrangement, the DC power draw would increase from approximately 18 Amps to 27 Amps. Again, under proper engineering, the 50-Amp fuse would not be changed at the BDFB and the CLEC would simply place the appropriately sized fuse in its power distribution panel for the new piece of equipment. However, with Mr. Nevels' revised proposal, the new DC Power draw of 27 Amps would require that the fuse be changed from 40 Amps to 55 Amps. Now at this point, the fuse size would exceed the capacity of the DC Power Delivery Arrangement cabling (50 Amps) and would place the cabling at risk to fire if, for some reason, more than 50 Amps of power were to flow across the conductor.

Q. WOULD AT&T PERSONNEL KNOW THAT THE DC POWER DELIVERY ARRANGEMENT CABLING WAS ONLY SIZED FOR 50 AMPS AND THEREFORE KNOW TO LIMIT THE FUSING TO 50 AMPS?

A. I am not certain. I know that with the standard engineering process used for DC Power Delivery Arrangements today, the AT&T Power Engineer would know the size of fuse to place on the conductor because its engineering practices (as noted earlier, in its Technical Publications) explicitly require that these two things (the conductor sizing and fuse sizing) be coordinated.

However, under Mr. Nevels' revised proposal, the fusing and the capacity of the conductor would no longer be coordinated. The fusing of the DC Power Delivery

Arrangement could change over the life of the collocation arrangement, up or down, depending on the use of equipment in the collocation arrangement. I simply do not know whether AT&T-Illinois has processes in place whereby it would know what the amperage capacity of the conductor would be years down the line after multiple fuse changes at the BDFB. However, given my understanding of how this fusing coordination with the conductor is typically done, I would not anticipate that this is information that would be maintained by the AT&T Power Engineer (*i.e.*, the amperage capacity of the conductor separate from the fuse size that is placed on the conductor). Regardless, I would strongly urge the Commission not to risk implementing Mr. Nevels' revised proposal in Illinois when AT&T's engineering practice makes clear that this is not how AT&T typically sizes its fuses for DC Power Delivery Arrangements.

Q. BASED ON YOUR REVIEW OF MR. NEVEL'S REVISED PROPOSAL, WHAT IS YOUR RECOMMENDATION?

A. Mr. Nevels' fusing proposals (initial and revised) are entirely inconsistent with AT&T's own engineering practices for DC Power Delivery Arrangements and good engineering practice. As such, they should be rejected in their entirety. Also, considering that Mr. Nevels' revised recommendation is not in the tariff language, I do not believe that any change needs to be made to the tariff language.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY AT THIS TIME?

A. Yes, it does.